

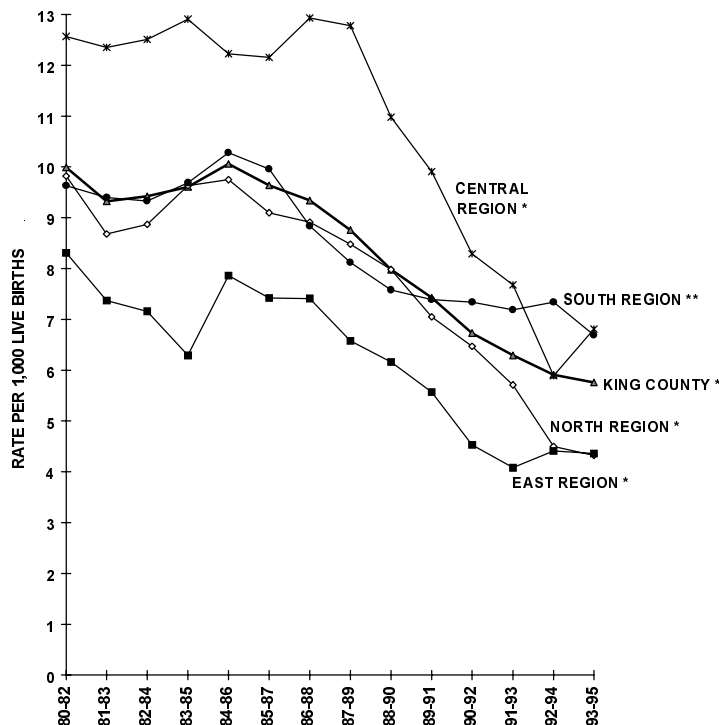
CHAPTER V: REGIONAL VARIATION OF INFANT MORTALITY WITHIN KING COUNTY

King County is quite large and diverse. Consequently, the health status of its population varies among its different regions. This chapter describes trends in infant mortality, causes of infant death and birth risk factors by region.

1. TRENDS IN INFANT MORTALITY BY REGION

The infant mortality rate during the 1993-1995 period was higher in the Central and South Regions than in the North and East Regions. Only the differences between the South and East Regions were statistically significant (Figure 5.1).

**FIGURE 5.1: INFANT MORTALITY RATES IN KING CO.
SOUTH, CENTRAL, NORTH, AND EAST REGIONS
THREE YEAR ROLLING AVERAGES, 1980-1995**



* THIS TREND FROM 1989-1995 IS A STATISTICALLY SIGNIFICANT DECREASE.
** THIS TREND FROM 1985-1995 IS A STATISTICALLY SIGNIFICANT DECREASE.
SOURCE: BIRTH AND DEATH CERTIFICATES

Trends in infant mortality also varied across the regions. All of the regions experienced slight increases in the early 1980s and subsequent decreases in the late 1980s. While the South Region rate stopped declining in the late 1980s, the 1993-1995 period may be the beginning of an improving trend, although data from future years are needed to distinguish between a true improvement and a random fluctuation in the rate.

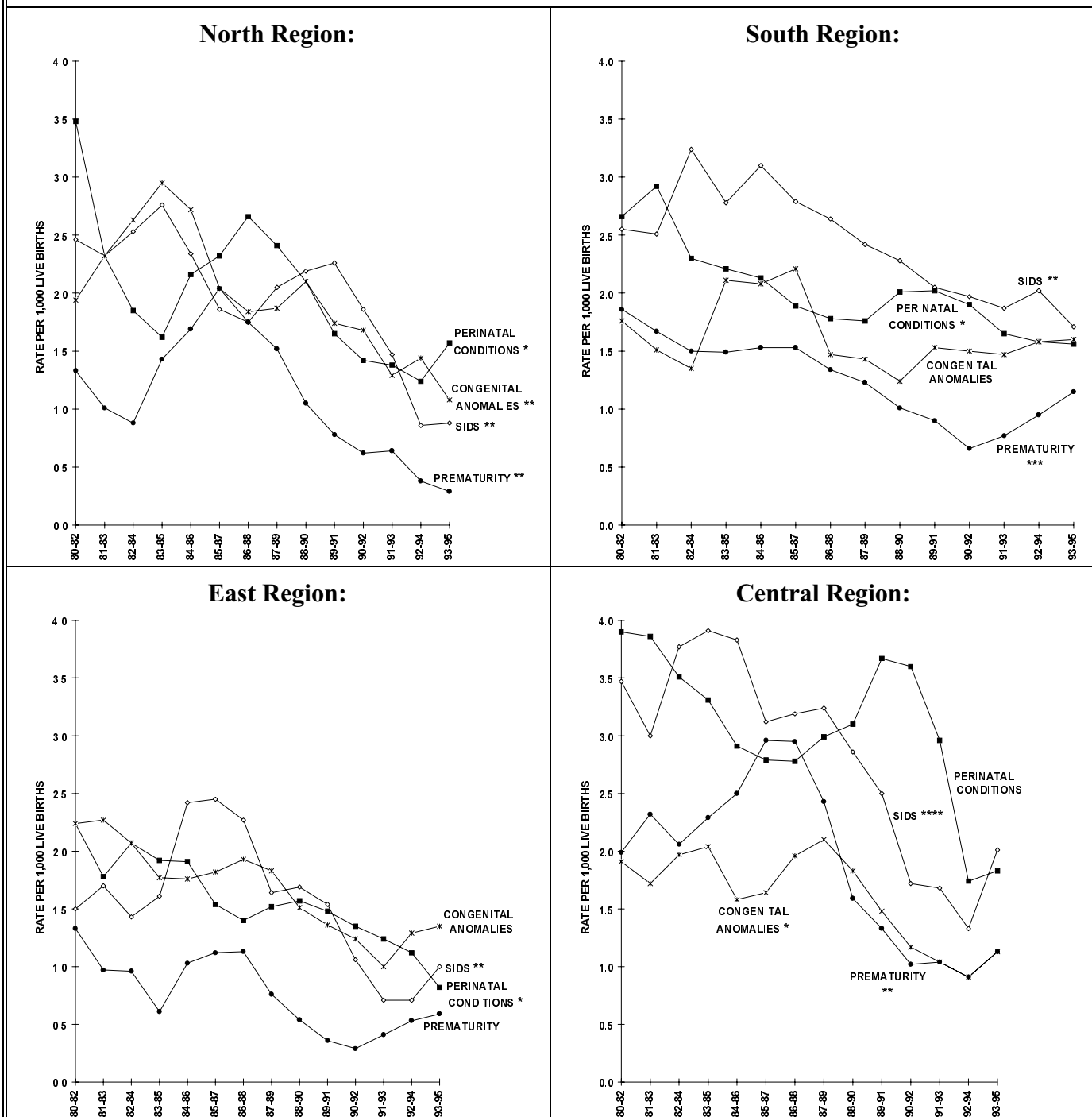
After a sustained decline, the rate in the Central Region appears to have increased in the 1993-1995 period. Data from future years are needed to determine whether this is a random variation around a declining trend or a true change.

The declining trend in the East and North Regions may also have plateaued.

2. TRENDS IN CAUSES OF INFANT DEATH

Trends in specific causes of infant death for all four regions are shown in Figure 5.2 on the following page. The increase in infant mortality rate in the Central Region seems to be due primarily to an increase in SIDS, with smaller contributions by deaths due to perinatal conditions and prematurity. The decline in the infant mortality rate in the South Region appears to be due to a decrease in all causes of death, with the exception of deaths due to prematurity which continued to increase, however non-significantly. In the North Region, declining trends in prematurity have continued while deaths due to SIDS, perinatal conditions, and congenital anomalies seem to have leveled. In the East Region, trends in deaths due to SIDS and prematurity appear to have increased, although non-significantly. Furthermore, trends in deaths due to congenital anomalies have leveled and those due to perinatal conditions have continued to decline.

**FIGURE 5.2: MAJOR CAUSES OF INFANT MORTALITY IN KING COUNTY
NORTH, SOUTH, EAST, AND CENTRAL REGIONS
THREE YEAR ROLLING AVERAGES, 1980-1995**



- * THIS TREND FROM 1980-1995 IS A STATISTICALLY SIGNIFICANT DECREASE.
- ** THIS TREND FROM 1985-1995 IS A STATISTICALLY SIGNIFICANT DECREASE.
- *** THIS TREND FROM 1980-1992 IS A STATISTICALLY SIGNIFICANT DECREASE.
- **** THIS TREND FROM 1980-1992 IS A STATISTICALLY SIGNIFICANT DECREASE AND FROM 1992-1995 A STATISTICALLY SIGNIFICANT INCREASE.

SOURCE: BIRTH AND DEATH CERTIFICATES.

3. CHANGING RISK FACTORS FOR INFANT MORTALITY IN THE FOUR REGIONS OF KING COUNTY

The measured risk factors for infant death did not change uniformly across the regions of King County (Figure 5.3).

Recent trends in all of the birth risk factors in the North Region continued in the 1993-1995 period.

In the South Region the recent trends continued, with increasing proportions of unmarried mothers, preterm births, and low birthweight births, and decreasing rates of smoking, alcohol use, and inadequate prenatal care (Figure 5.3). The rate of improvement in prenatal care slowed somewhat in the 1993-1995 period. The southwest sub-region of the South Region had either the smallest decreases or largest increases in all risk factors (except for preterm birth, where the East Region showed a higher increase in rate) and tended to have the second highest rates of occurrence of most risk factors after the Central Region (Table 5.1).

All birth risk factors in the Central Region either continued to decline slowly or to remain level in the 1993-1995 period. Despite these favorable changes, this Region had the highest rates of risk factors, except for maternal smoking. In addition, the rate of improvement in access to prenatal care continued to slow in the 1993-1995 period.

The East Region had lowest levels of all birth risk factors. Recent trends in birth risk factors in the East Region continued in the 1993-1995 period. Table 5.1 below summarizes the changes in birth risk factors in King County and in all four regions between the periods of 1984-1986 and 1993-1995.

TABLE 5.1: CHANGES IN BIRTH RISK FACTORS FOR INFANT MORTALITY BY REGION IN KING COUNTY, 1984-1986 VERSUS 1993-1995

	Infant Mortality*			Low Birth Weight**			Preterm Birth**		
AREA	84-86	93-95	PERCENT CHANGE	84-86	93-95	PERCENT CHANGE	84-86	93-95	PERCENT CHANGE
King County	10.06	5.76	- 43%	5.55	5.48	- 1%	8.79	9.18	+ 4%
South Region	10.28	6.69	- 35%	5.37	5.76	+ 7%	8.92	9.56	+ 7%
Southwest Sub-Region	8.52	7.27	- 15%	5.59	6.52	+ 17%	8.99	10.11	+ 12%
Southeast Sub-Region	11.50	6.29	- 45%	5.21	5.23	+ 0%	8.88	9.16	+ 3%
Central Region	12.23	6.81	- 44%	7.73	6.73	- 13%	11.20	10.68	- 5%
North Region	9.75	4.32	- 56%	5.11	4.81	- 6%	8.12	8.24	+ 1%
East Region	7.86	4.36	- 45%	4.33	4.62	+ 7%	7.11	8.12	+ 14%
	Inadequate Prenatal Care**			Single Marital Status**			Births to Adolescents Age 15-17***		
AREA	84-86	93-95	PERCENT CHANGE	84-86	93-95	PERCENT CHANGE	84-86	93-95	PERCENT CHANGE
King County	12.01	9.78	- 19%	17.56	23.16	32%	18.43	20.90	+ 13%
South Region	12.96	11.20	- 14%	17.25	27.19	58%	18.09	26.26	+ 45%
Southwest Sub-Region	13.62	13.91	+ 2%	18.64	32.25	73%	17.56	32.04	+ 82%
Southeast Sub-Region	12.52	9.29	- 26%	16.29	23.70	45%	18.44	22.80	+ 24%
Central Region	18.23	14.04	- 23%	32.44	35.28	9%	40.79	36.08	- 12%
North Region	8.89	7.03	- 21%	12.57	16.66	33%	13.15	14.19	+ 8%
East Region	7.75	6.36	- 18%	9.02	12.28	36%	8.55	8.81	+ 3%
	Maternal Smoking**			Maternal Alcohol Use**					
AREA	84-86	93-95	PERCENT CHANGE	84-86	93-95	PERCENT CHANGE			
King County	19.59	12.76	- 35%	---	3.48	---			
South Region	23.82	16.28	- 32%	---	2.61	---			
Southwest Sub-Region	24.50	17.43	- 29%	---	2.91	---			
Southeast Sub-Region	23.35	15.47	- 34%	---	2.36	---			
Central Region	22.34	11.59	- 48%	---	4.22	---			
North Region	14.94	10.20	- 32%	---	3.92	---			
East Region	14.16	9.26	- 35%	---	3.80	---			

* Rates are per 1000 live births.

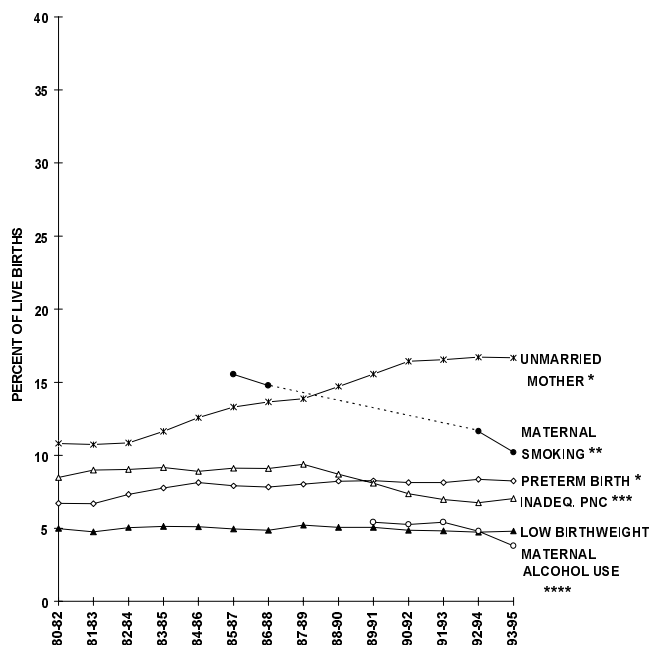
** Rates are percent of live births.

*** Rates are per 1000 women age 15-17.

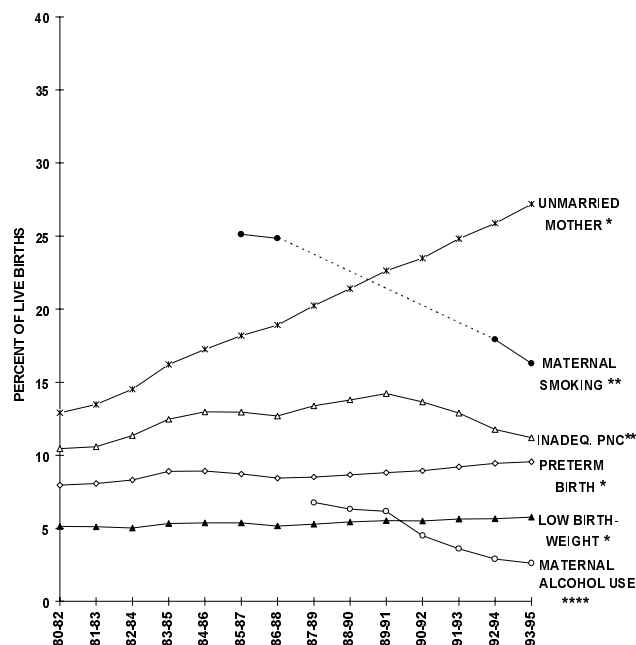
- means percent decrease, and + means percent increase

**FIGURE 5.3: BIRTH RISK FACTORS IN KING COUNTY
NORTH, SOUTH, EAST, AND CENTRAL REGIONS
THREE YEAR ROLLING AVERAGES, 1980-1995**

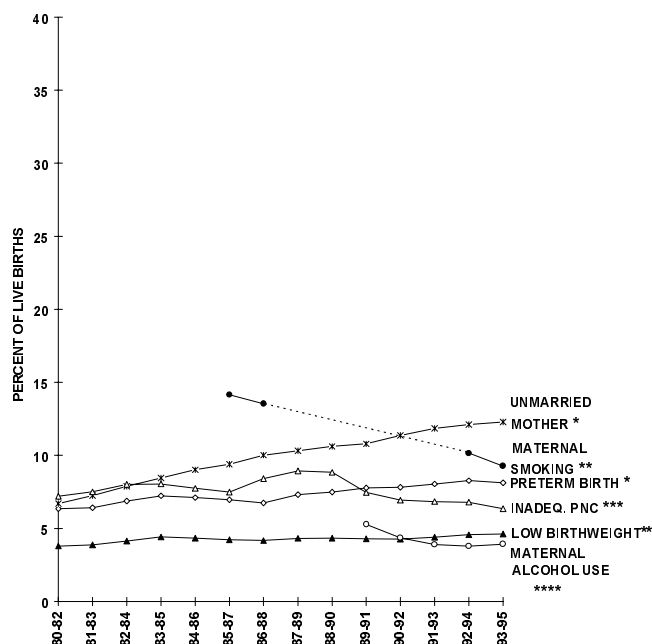
North Region:



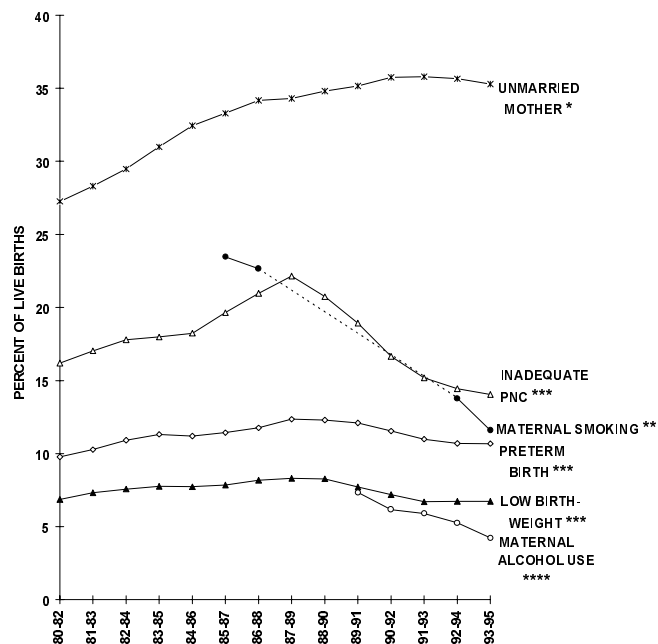
South Region:



East Region:



Central Region:



* THIS TREND FROM 1980-1995 IS A STATISTICALLY SIGNIFICANT INCREASE.

** THIS TREND FROM 1985-1995 IS A STATISTICALLY SIGNIFICANT DECREASE.

*** THIS TREND FROM 1980-1988 IS A STATISTICALLY SIGNIFICANT INCREASE AND FROM 1988-1995 A STATISTICALLY SIGNIFICANT DECREASE.

**** THIS TREND FROM 1989-1995 IS A STATISTICALLY SIGNIFICANT DECREASE.

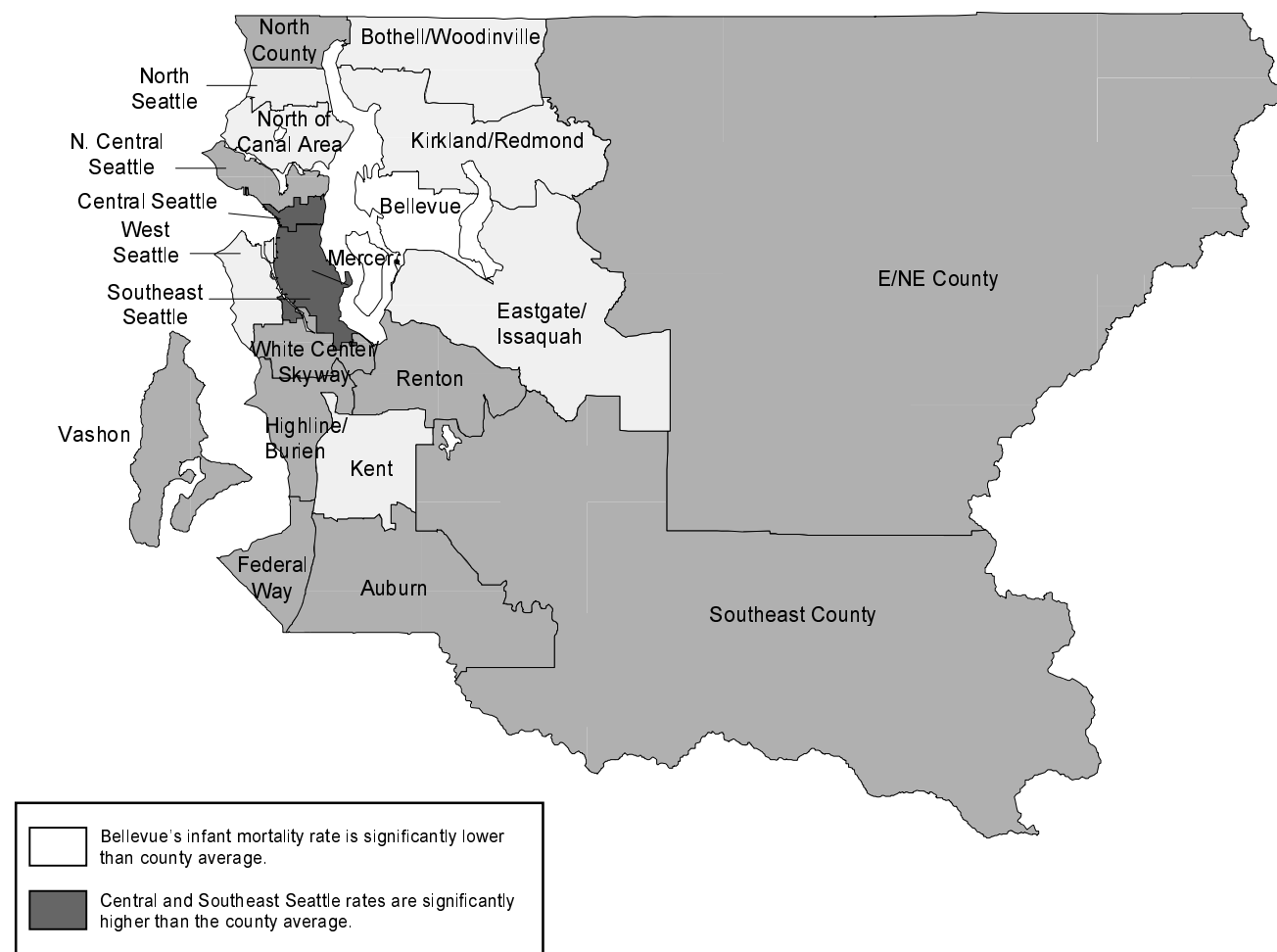
SOURCE: BIRTH AND DEATH CERTIFICATES.

4. INFANT MORTALITY BY HEALTH PLANNING AREA

To further understand the regional variation in infant mortality, we analyzed the infant mortality rate for each of the 21 Health Planning Areas in King County. During the 1991-1995 period, the Central and Southeast Seattle areas were the only ones whose rates significantly exceeded the county average of 6.1 per 1000 live births, while Bellevue was the only area whose rate was significantly lower than average. All areas within the South Region were above the King County average, with the exception of Kent. Recent trends in infant mortality continued in most of the areas, except for Bellevue, East/Northeast King County, North King County, North Central Seattle, Southeast Seattle, and Federal Way, where rates have leveled in 1993-1995 period, and Auburn, where a declining trend appears to have begun. Data from forthcoming years are needed before drawing any conclusions about changing trends.

The map in Figure 5.4 illustrates the variation in infant mortality rates by Health Planning Area. The areas with the darkest shading have rates that exceed the county average by one standard deviation (refer to Chapter I “How to Read This Report” for explanation of standard deviation).

**FIGURE 5.4: INFANT MORTALITY RATE BY HEALTH PLANNING AREA IN KING COUNTY
5 YEAR AVERAGE, 1991 - 1995**



SUMMARY

- The 1993-1995 period for the South Region may mark the beginning of an improving trend. The rate in the Central Region appears to have increased in the 1993-1995 period. The declining trend in the East region appears to have plateaued.
- The possible increase in the infant mortality rate in the Central Region seems to be primarily due to an increase in SIDS. The decline in the infant mortality rate in the South Region seems to be due to a decrease in all causes of death, except for deaths due to prematurity which continued to increase.
- Recent trends in birth risk factors in the East, North, Central, and South Regions continued in the 1993-1995 period. The rate of improvement in prenatal care slowed in both the Central and South Regions. The East Region had the lowest levels and the Central Region had highest levels of birth risk factors during the period of 1993-1995. The southwest area of the South Region tended to have the second highest rates of occurrence of risk factors after the Central Region.
- The Central and Southeast Seattle areas were the only ones whose rates significantly exceeded the county average during the 1991-1995 period, while the Bellevue area exhibited a significantly lower rate.